

ABSTRACT OF THE DISCLOSURE

**METHOD AND APPARATUS FOR
MAINTAINING INDEPENDENT,
PARALLEL DATA STREAMS OVER
SEPARATE MODULATION CHANNELS
OF A MULTI-DIMENSIONAL MODULATOR**

A method and apparatus are provided for supporting the transmission of communications data in a satellite communications network 10 between user terminals 15-18 and a ground station 14 via a satellite 12. At least one carrier signal is generated in a beam spot and conveys communications data over at least one downlink 22-25 to the user terminals 15-18. The carrier signal is modulated simultaneously with independent communications data streams EDP15 and EDP 18 over modulation channels 802 and 804, respectively, of a multi-dimensional modulator 400. By passing independent data streams over each dimension of an n-dimension modulation technique, different encoding schemes may be assigned to user terminals 15-18 based upon the strength of the signal received by the user terminal 15-18.